

**BABY CARRIER****By****Choon Hwa Hwang**

5 This is a continuation-in-part application of Serial No.  
09/910,529.

**BACKGROUND OF THE INVENTION**

10 The present invention relates to a baby carrier, and more particularly, to a baby carrier which enables a baby to be taken on a baby caretaker's back such as a baby mother's back at the posture of the baby sitting on a chair, to thereby reduce burdens of the baby caretaker such as the mother of the baby.

15 In general, most of baby carriers which are used for taking a baby on a baby caretaker's back includes a cover sheet wrapping both bodies of a baby and a baby caretaker, and a binding strap wound round the cover sheet, for providing a binding force for binding the cover sheet.

20 Such a conventional baby carrier enables a baby caretaker to take a baby on his or her back comfortably with a comparatively small force, since the baby adheres to the baby caretaker. However, since the baby enclosed with the cover sheet is bound on the baby caretaker's waist with the binding strap in use, it is not convenient for the baby caretaker to use the baby carrier. Further, the baby can fall down 25 from the baby caretaker's back at an instant time when the baby is

**CERTIFICATE OF MAILING**DATE OF DEPOSIT: 11-28-04

I HEREBY CERTIFY THAT THIS PAPER OR FEE IS BEING DEPOSITED WITH THE UNITED STATES POSTAL SERVICE WITH SUFFICIENT POSTAGE AS FIRST CLASS MAIL ON THE DATE INDICATED ABOVE AND IS ADDRESSED TO MAIL STOP PATENT APPLICATION, COMMISSIONER FOR PATENTS, P.O. BOX 1450, ALEXANDRIA, VA 22313-1450 BY Choon Hwa Hwang PRINT Hana Choi

taken on the baby caretaker's back.

A baby carrier shown in FIG. 11 and disclosed in Korean Patent Laid-open Publication No. 99-73529 includes a wrapper 100 capable of enclosing a baby, a hip supporting belt (not shown) whose both ends 5 are combined with the wrapper 100, to thereby support the hip of the baby, and shoulder belts 300 which are respectively provided on both ends of the wrapper 100, and which are bound mutually by a binder 310. In particular, the wrapper 100 includes an elastic supporter 110 for 10 elastically supporting the neck of the baby to smoothly support the neck of the baby. Also, a saddle pants portion 120 having flexibility is provided in the inner surface of the wrapper 100 so that the baby can be stably supported.

However, in the case of the above conventional baby carrier, the weight of the baby is concentrated into the hip support belt, and the 15 saddle pants portion presses over the thighs and the waist of the baby, to thereby have the baby feel uncomfortable. Further, when the baby is inserted into the saddle pants portion, the legs of the baby should be widened. In addition, a variety of articles to be carried basically by a baby caretaker should be carried separately.

20 Korean patent laid-open publication Nos. 97-61142 and 99-1143, disclose a technology entitled "Waist bag combined with baby holder," respectively in which a baby is sat in the body of a baby holder combined with a waist bag, and simultaneously a simple article can be accommodated.

25 However, in the case of the "waist bag combined with baby holder,"

since a baby caretaker is somewhat distant from a baby, the baby caretaker should burden a heavy workload. Also, since the baby caretaker should always embrace a baby, the baby caretaker is easy to be tired when he or she is out or works for a long time. Further, since 5 the weight of the baby is concentrated on the inside of the thighs of the baby, the baby may feel uncomfortable.

#### SUMMARY OF THE INVENTION

To solve the above problems, it is an object of the present 10 invention to provide a baby carrier that is designed to reduce the burden of the weight of a baby.

It is another object of the present invention to provide a baby carrier that enables a baby to sit therein psychologically stable and comfortably due to a structure that a baby adheres closely to a baby 15 caretaker.

It is still another object of the present invention to provide a baby carrier that can be used as a knapsack when the baby carrier is not used for taking a baby on a baby caretaker's back, and simple articles can be accommodated even when the baby carrier is used for 20 taking a baby on a baby caretaker's back.

To accomplish these and other objects, a baby carrier according to the present invention comprises a wrapper partitioned to a front portion and a rear portion, wherein the front portion has a back support to support the back of a baby when needed and a hip sheet extending from 25 the back support. The rear portion has a bottom sheet extending from

the hip sheet and a rear sheet extending from the hip sheet where auxiliary supports are each connected to the bottom sheet to support the thighs of the baby when needed. The baby carrier further comprises shoulder straps connecting the back support to the auxiliary supports

5 to hook the connected shoulder straps on the shoulders of a baby caretaker when needed, where the hip sheet is foldable over on the bottom sheet so as to allow the baby to sit on the hip sheet detachably layered on the bottom sheet while being supported by the auxiliary supports.

Advantages of the present invention are numerous. First, at the 10 state when a baby is strapped to a baby caretaker's back, the tensile strength works on the hip sheet and the back support being supported by the shoulder straps and the auxiliary supports to thereby form a catenary's curve in the hip sheet and the back support of the front portion of the wrapper. Thus, the weight of the baby is distributed 15 uniformly, and the baby adheres closely to the baby caretaker's back. As a result, a coupling moment occurring when the baby caretaker is at work becomes smaller, which enables the baby caretaker to consume a much smaller amount of force and burden when he or she takes the baby on his or her back. Second, the structure that the baby adheres closely to the 20 baby caretaker's back provides the baby with a sense of psychological stability. Third, the baby carrier can be used as a knapsack when the baby carrier is not used for taking a baby on a baby caretaker's back.

Fourth, in contrast to the conventional baby carrier requiring that the legs of the baby are widened to enable a baby caretaker to insert 25 the baby into a saddle pants portion, the baby carrier according to the

present invention enables a baby caretaker to easily hook the shoulder straps of the baby carrier on his or her shoulder after a baby is loaded or positioned in the hip sheet and the back support of the front portion of the wrapper at the state where the wrapper is unfolded in a sack format, 5 with a result that the baby can be easily taken on the baby caretaker's back.

Finally, the baby carrier according to the present invention can be applied depending upon the body shape of a baby by adjusting adjustment straps.

10

#### **BRIEF DESCRIPTION OF THE DRAWINGS**

The above objects and other advantages of the present invention will become more apparent by describing the preferred embodiments thereof in more detail with reference to the accompanying drawings 15 in which:

FIG. 1 is a view showing a baby carrier according to the present invention wherein the baby carrier serves as a sack;

FIGS. 2 and 3 are views each showing conversion from a sack to the baby carrier;

20 FIGS. 4 and 5 are rear views of the baby carrier;

FIG. 6 is a view showing a caretaker carrying a baby using the baby carrier;

FIG. 7 is a view showing efficiency of the baby carrying mechanism of the present invention;

25 FIG. 8 is a bottom view showing connection of auxiliary supports

to a bottom sheet of the baby carrier;

FIG. 9 is a view showing a safety mechanism of the baby carrier;

FIG. 10 is a model view showing an actual use of the baby carrier;

and

5 FIG. 11 is a view showing a conventional art.

#### DETAILED DESCRIPTION OF THE INVENTION

As shown in FIGS. 1-3, a baby carrier **10** according to the present invention comprises a wrapper **12** partitioned to a front portion **14** and a rear portion **16**. The front portion **14** has a back support **18** to support the back of a baby when needed and a hip sheet **20** extending downwardly from the back support **18**. The rear portion **16** has a bottom sheet **22** extending from the hip sheet **20**. The rear portion **16** of the wrapper **12** also includes a rear sheet **24** extending upwardly from the bottom sheet **22**. The wrapper **12** may be provided in form of a sack and substantially sagged around the hip sheet **20** and the bottom sheet **22**.

As further shown in FIGS. 4-6 and 8-10, auxiliary supports **26** are each connected to the bottom sheet **22** to support the thighs of the baby when needed. Also, shoulder straps **28** are provided to connect the back support **14** to the auxiliary supports **26** to become hooked on the shoulders of a baby caretaker when needed. In this construction, the hip sheet **20** is foldable over on the bottom sheet **22** so as to allow the baby to sit on the hip sheet **20** which is detachably layered on the bottom sheet **22**. Here, the bottom sheet **22** is supported by the auxiliary supports **26**.

The baby carrier **10** further comprises safety belts **30** connected to a lower-center of the wrapper **32**. The safety belts **30** are detachably connected over the thighs of the baby to the auxiliary supports **26**. Specifically, as shown in FIG. 4, the safety belts **30** are fastened to 5 hooks **34** of the auxiliary supports **26**. Selectively, connection belts **36** may be provided to connect the shoulder straps **28** in a horizontal tying format. A pocket **38** is preferably attached to the rear support **16**, for example, to accommodate nursing bottles and diapers. In a preferred version, the auxiliary supports **26** are connected by gap 10 adjustment straps **40** to the shoulder straps **28**.

Referring to FIGS. 6 and 7, when the baby caretaker **M** wears the baby carrier **10**, the weight of the baby works along the wide curve **f1-fn** of the oval loop **40** reflecting the imaginary closed line formed by the back support **18**, the hip sheet **20**, the shoulder straps **28** and 15 the auxiliary supports **26** of the baby carrier **10**. The loads indicated by **f1-fn** with regard to the baby's weight are transferred to the shoulder strap **28** as external forces **F1** and **F2**. As a result, an equilibrium state is maintained and enables the baby **B** to closely adhere to the baby caretaker **M**. As the baby **B** closely adheres to the 20 baby caretaker **M**, the distance between the load center of the baby **B** and the baby caretaker **M** becomes relatively short. Accordingly, since a coupling moment becomes small, external forces **F1** and **F2** burdened by the baby caretaker **M** become small. Thus, since a much 25 smaller force is consumed during the time when the baby caretaker **M** works on caretaking the baby **B** using the baby carrier **10**, the fatigue

of the baby caretaker **M** is substantially reduced. Also, since the baby **B** adheres to the baby caretaker **M**, the baby **B** becomes psychologically stable.

The baby carrier **10** becomes a state where a baby can be taken on 5 a baby caretaker's back when the front portion **14** of the wrapper **12** is pushed in toward the rear portion **16** of the wrapper **12**. Whereas, in case that the baby carrier **10** is not used for caretaking a baby, the front portion **14** of the wrapper **12** may be restored to use the wrapper **12** as a container or a sack.

10 As further shown in FIGS. **4** and **5**, the safety belts **30** may be sewed on the bottom sheet **22**. The safety belts **30** pass through between the legs of the baby and the hooks **33** of the safety belts **32** are combined with rings **34** provided on the auxiliary supports **26** to thereby prevent the baby from falling down from the baby carrier **10**.

15 Hooks **33** are formed in the respective ends of the safety belts **32**, which are respectively connected to reception hooks **34**. For the connection belts **36**, a male holder **35** is formed in each one end thereof and a female holder **37** is formed in the other end thereof. Accordingly, the connection belts **36** are respectively connected to the shoulder 20 straps **28**. In this case, the shoulder straps **28** are prevented from slipping down from either shoulder of the baby caretaker.

Meanwhile, shoulder straps **28** are preferably constituted in the same directions as those of forces **F1** and **F2** in FIG. 7, working in the transverse direction with respect to the bottom sheet **22** when a baby 25 caretaker takes a baby on his or her back. In this case, since the weight

of the baby is distributed on the hip and bottom sheets **20**, **22** uniformly, a baby caretaker feels relatively less burdened during the time when he or she takes a baby on his or her back.

A tightening strap **42** is releasably attached the upper side of 5 the wrapper **12**. An adjustment unit **44** is connected to the tightening strap **42**. Thus, when the tightening strap **42** is tightened or released, the top opening **46** of the wrapper **12** can be opened and closed.

Also, adjustment belts **48** are provided to controllably fasten the pocket **38** to the shoulder straps **28**. In this case, the adjustment belts 10 **48** can be adjusted in length and the wrapper **12** can also be adjusted depending upon the body shape of a baby. Accordingly, in the case that a baby is taken on a baby caretaker's back, the baby can adhere mutually more closely to the baby caretaker.

A hook-shaped magic tape **50** is attached on a belt **54** sewed in the 15 upper-center of the back support **14**, and a loop-shaped magic pile **52** is attached on the pocket **38** to which the hook-shaped magic tape **50** is attached.

The wrapper **12** of the baby carrier **10** may be inflated through the top opening **46** to turn the baby carrier **10** to a sack for material 20 carriage.

The front portion **14** including the back support **18** and the hip sheet **20** can be pushed (folded) into the rear portion **16** of the wrapper **12** along the folding line **56** partitioning the front portion **14** from the rear portion **16**. The folding line **56** serves to facilitate the conversion 25 of the baby carrier **10** from a sack format to a baby carrier format and

vise versa. When the front portion **14** of the wrapper **12** is pushed toward the pocket **38** and double-layered with the rear portion **16**, the baby is allowed to comfortably sit on the hip sheet **20** with the baby's back rested along the back support **18** of the front portion **14** of the wrapper **12**.

When the baby is seated on the hip sheet **20**, the hip sheet **20** becomes lengthened due to the weight of the baby, thereby forming a catenary's curve which serves to evenly distribute the load of the baby while supporting the thighs of the baby. At this time, the hip sheet **20** is preferably formed in a concave structure into which a baby can be stably loaded.

For a better performance, as shown in FIG. 9. a waist belt **58** may be selectively connected to the auxiliary supports **26**. The waist belt **58** is worn on the waist of the baby caretaker to prevent unwanted movement of the baby carrier **10** so that the baby caretaker can be freely at work even when he or she wears the baby carrier **10**.

As described above, the baby carrier **10** according to the present invention has the following merits and advantages.

First, at the state when a baby is strapped to a baby caretaker's back, the tensile strength works on the hip sheet **20** and the back support **18** being supported by the shoulder straps **28** and the auxiliary supports **26** to thereby form a catenary's curve in the hip sheet **20** and the back support **18** of the front portion **14** of the wrapper **12**. Thus, the weight of the baby is distributed uniformly, and the baby adheres closely to the baby caretaker's back. As a result, a coupling moment occurring

when the baby caretaker is at work becomes smaller, which enables the baby caretaker to consume a much smaller amount of force and burden when he or she takes the baby on his or her back.

Second, the structure that the baby adheres closely to the baby 5 caretaker's back provides the baby with a sense of psychological stability.

Third, the baby carrier **10** can be used as a knapsack when the baby carrier is not used for taking a baby on a baby caretaker's back.

Fourth, in contrast to the conventional baby carrier requiring 10 that the legs of the baby are widened to enable a baby caretaker to insert the baby into a saddle pants portion, the baby carrier **10** according to the present invention enables a baby caretaker to easily hook the shoulder straps **28** of the baby carrier **10** on his or her shoulder after a baby is loaded or positioned in the hip sheet **20** and the back support 15 **18** of the front portion **14** of the wrapper **12** at the state where the wrapper **12** is unfolded in a sack format, with a result that the baby can be easily taken on the baby caretaker's back.

Finally, the baby carrier according to the present invention can be applied depending upon the body shape of a baby by adjusting 20 adjustment straps.

The present invention is not limited to the above embodiments. It is apparent to those who are skilled in the art that there are many modifications within the technical scope and spirit of the invention.